

Model NA-265 series airplanes modified by Sabreliner Corporation. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

The substance of these special conditions has been subjected to the notice and comment procedure in several prior instances and has been derived without substantive change from those previously issued. Because a delay would significantly affect the certification of the airplane, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

#### List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

#### The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the supplemental type certification basis for Sabreliner Model NA-265 series airplanes modified by Sabreliner Corporation.

1. *Protection from Unwanted Effects of High-Intensity Radiated Fields (HIRF)*. Each electrical and electronic system that performs critical functions must be designed and installed to ensure that the operation and operational capability of these systems to perform critical functions are not adversely affected when the airplane is exposed to high-intensity radiated fields.

2. For the purpose of these special conditions, the following definition applies: *Critical Functions*. Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

Issued in Renton, Washington, on August 28, 2003.

**Kalene C. Yanamura,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*  
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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. NM264, Special Conditions No. 25-246-SC]

#### Special Conditions: Gulfstream Aerospace LP 1125 Westwind Astra; High Intensity Radiated Fields (HIRF)

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special conditions; request for comments.

**SUMMARY:** These special conditions are issued for Gulfstream Aerospace LP 1125 Westwind Astra airplanes modified by Garrett Aviation Services. These modified airplanes will have novel or unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. The modification incorporates the upgrade of one Air Data Computer system and the installation of a second Air Data Computer system, both of which perform critical functions. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for the protection of these systems from the effects of high-intensity-radiated fields (HIRF). These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that provided by the existing airworthiness standards.

**DATES:** The effective date of these special conditions is August 28, 2003. Comments must be received on or before October 9, 2003.

**ADDRESSES:** Comments on these special conditions may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM-113), Docket No. NM264, 1601 Lind Avenue SW., Renton, Washington 98055-4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM264.

**FOR FURTHER INFORMATION CONTACT:** Meghan Gordon, FAA, Standardization Branch, ANM-113, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055-4056; telephone (425) 227-2138; facsimile (425) 227-1149.

**SUPPLEMENTARY INFORMATION:**

#### Comments Invited

The FAA has determined that notice and opportunity for prior public comment is impracticable, because these procedures would significantly delay certification of the airplane and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA, therefore, finds that good cause exists for making these special conditions effective upon issuance; however, the FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. The docket is available for public inspection before and after the comment close date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late, if it is possible to do so without incurring expense or delay. We may change these special conditions, based on the comments we receive.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

#### Background

On July 2, 2003, Garrett Aviation Services, 1200 North Airport Drive, Capital Airport, Springfield, IL 62707, applied for a supplemental type certificate (STC) to modify Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes approved under Type Certificate No. A16NM. The Model 1125 Westwind Astra is a small transport category airplane, powered by two Turbofan Engines; the airplane has a maximum takeoff weight of 24,800 pounds. The Model 1125 Westwind Astra operates with a 2-pilot crew and holds up to 9 passengers. The modification incorporates the upgrade

of the single Rockwell Collins ADS-85 Air Data System and the installation of an Innovative Solutions & Support Air Data Display Unit and a 2-inch Standby Altimeter. These avionics/ electronics and electrical systems have the potential to be vulnerable to high-intensity radiated fields (HIRF) external to the airplane.

**Type Certification Basis**

Under the provisions of 14 CFR 21.101, Garrett Aviation Services must show that the Model 1125 Westwind Astra airplanes, as modified, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A16NM or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The certification basis for the Model 1125 Westwind Astra airplanes includes 14 CFR part 25, dated February 1, 1965, through Amendment 25-54, except for special conditions and exceptions noted in Type Certificate Data Sheet (TCDS) A16NM.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 25, as amended) do not contain adequate or appropriate safety standards for the Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes modified by Garrett Aviation Services because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Gulfstream Aerospace LP 1125 Westwind Astra airplanes modified by Garrett Aviation Services must comply with the fuel vent and exhaust requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36, and the FAA must issue a finding of regulatory adequacy

pursuant to § 611 of Public Law 92-574, the "Noise Control Act of 1972."

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38, and become part of the type certification basis in accordance with § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should Garrett Aviation Services apply at a later date for a supplemental type certificate to incorporate the same or similar novel or unusual design features, these special conditions would also apply to the other model.

**Novel or Unusual Design Features**

As noted earlier, the Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes modified by Garrett Aviation Services will incorporate the upgrade of the single Rockwell Collins ADS-85 Air Data System and the installation of an Innovative Solutions & Support Air Data Display Unit and a 2-inch Standby Altimeter that will perform critical functions. These systems may be vulnerable to HIRF external to the airplane. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards for the protection of this equipment from the adverse effects of HIRF. Accordingly, these systems are considered to be a novel or unusual designs.

**Discussion**

There is no specific regulation that addresses protection requirements for electrical and electronic systems from HIRF. Increased power levels from ground-based radio transmitters and the growing use of sensitive avionics/ electronics and electrical systems to command and control airplanes have made it necessary to provide adequate protection.

To ensure that a level of safety is achieved equivalent to that intended by the regulations incorporated by

reference, special conditions are needed for the Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes modified by Garrett Aviation Services. These special conditions require that new avionics/electronics and electrical systems that perform critical functions be designed and installed to preclude component damage and interruption of function due to both the direct and indirect effects of HIRF.

**High-Intensity Radiated Fields (HIRF)**

With the trend toward increased power levels from ground-based transmitters and the advent of space and satellite communications, coupled with electronic command and control of the airplane, the immunity of critical avionics/electronics and electrical systems to HIRF must be established.

It is not possible to precisely define the HIRF to which the airplane will be exposed in service. There is also uncertainty concerning the effectiveness of airframe shielding for HIRF. Furthermore, coupling of electromagnetic energy to cockpit-installed equipment through the cockpit window apertures is undefined. Based on surveys and analysis of existing HIRF emitters, an adequate level of protection exists when compliance with the HIRF protection special condition is shown with either paragraph 1 or 2 below:

1. A minimum threat of 100 volts rms (root-mean-square) per meter electric field strength from 10 KHz to 18 GHz.

a. The threat must be applied to the system elements and their associated wiring harnesses without the benefit of airframe shielding.

b. Demonstration of this level of protection is established through system tests and analysis.

2. A threat external to the airframe of the field strengths identified in the table below for the frequency ranges indicated. Both peak and average field strength components from the table are to be demonstrated.

| Frequency             | Field strength (volts per meter) |         |
|-----------------------|----------------------------------|---------|
|                       | Peak                             | Average |
| 10 kHz-100 kHz .....  | 50                               | 50      |
| 100 kHz-500 kHz ..... | 50                               | 50      |
| 500 kHz-2 MHz .....   | 50                               | 50      |
| 2 MHz-30 MHz .....    | 100                              | 100     |
| 30 MHz-70 MHz .....   | 50                               | 50      |
| 70 MHz-100 MHz .....  | 50                               | 50      |
| 100 MHz-200 MHz ..... | 100                              | 100     |
| 200 MHz-400 MHz ..... | 100                              | 100     |
| 400 MHz-700 MHz ..... | 700                              | 50      |
| 700 MHz-1 GHz .....   | 700                              | 100     |
| 1 GHz-2 GHz .....     | 2000                             | 200     |
| 2GHz-4 GHz .....      | 3000                             | 200     |
| 4 GHz-6 GHz .....     | 3000                             | 200     |

| Frequency           | Field strength<br>(volts per meter) |         |
|---------------------|-------------------------------------|---------|
|                     | Peak                                | Average |
| 6 GHz–8 GHz .....   | 1000                                | 200     |
| 8 GHz–12 GHz .....  | 3000                                | 300     |
| 12 GHz–18 GHz ..... | 2000                                | 200     |
| 18 GHz–40 GHz ..... | 600                                 | 200     |

NOTE.—The field strengths are expressed in terms of peak of the root-mean-square (rms) values over the complete modulation period.

The threat levels identified above are the result of an FAA review of existing studies on the subject of HIRF, in light of the ongoing work of the Electromagnetic Effects Harmonization Working Group of the Aviation Rulemaking Advisory Committee.

**Applicability**

As discussed above, these special conditions are applicable to Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes modified by Garrett Aviation Services. Should Garrett Aviation Services apply at a later date for a supplemental type certificate to modify any other model included on the Type Certificate No. A16NM to incorporate the same or similar novel or unusual design features, these special conditions would apply to that model as well.

**Conclusion**

This action affects only certain novel or unusual design features on Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes modified by Garrett Aviation Services. It is not a rule of general applicability and affects only the applicant which applied to the FAA for approval of these features on the airplanes.

The substance of these special conditions has been subjected to the notice and comment procedure in several prior instances and has been derived without substantive change from those previously issued. Because a delay would significantly affect the certification of the airplane, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

**List of Subjects in 14 CFR Part 25**

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The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

**The Special Conditions**

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Gulfstream Aerospace LP Model 1125 Westwind Astra airplanes modified by Garrett Aviation Services.

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2. For the purpose of these special conditions, the following definition applies: *Critical Functions:* Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

**Kalene C. Yanamura,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*  
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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. 2003-NE-29-AD; Amendment 39-13300; AD 2003-18-09]**

**RIN 2120-AA64**

**Airworthiness Directives; Rolls-Royce plc Trent 768-60, Trent 772-60, and Trent 772B-60 Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for Rolls-

Royce plc (RR) Trent 768-60, Trent 772-60, and Trent 772B-60 turbofan engines. This AD requires removal from service of certain part numbers of high pressure (HP) compressor rotor shafts, based on a newly established reduced life limit. This AD is prompted by reports of HP compressor drums with small cracks in blade loading slots found at overhaul inspection. The HP compressor drums are an integral part of the HP compressor rotor shaft. We are issuing this AD to prevent possible uncontained HP compressor drum failure, which could result in damage to the airplane.

**DATES:** Effective September 24, 2003.

We must receive any comments on this AD by November 10, 2003.

**ADDRESSES:** Use one of the following addresses to submit comments on this AD:

- By mail: The Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2003-NE-29-AD, 12 New England Executive Park, Burlington, MA 01803-5299.

- By fax: (781) 238-7055.

- By e-mail: [9-ane-adcomment@faa.gov](mailto:9-ane-adcomment@faa.gov).

You may examine the AD docket at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

**FOR FURTHER INFORMATION CONTACT:**

James Lawrence, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7176; fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** The Civil Aviation Authority, (CAA), which is the airworthiness authority for the U.K., recently notified the FAA that an unsafe condition may exist on Rolls-Royce plc Trent 768-60, Trent 772-60, and Trent 772B-60 turbofan engines. The CAA advises that it has received overhaul inspection reports of HP compressor drums with small cracks in blade loading slots. The HP compressor drums are an integral part of the HP compressor rotor shaft. The manufacturer is currently analyzing parts from the field, and has not yet